IN THE CLAIMS:

1. (Currently Amended) A method for performing time and frequency SNR dependent weighting in speech recognition comprising the steps of:

for each speech frame t, estimating the SNR to get time and frequency SNR information $\eta_{t,f}$;

calculating the time and frequency weighting to get weighting coefficient γ_{tf}, wherein γ_{tf} is a function of $\eta_{t,f}$;

using an inverse DCT matrix M^{-1} to transform a cepstral distance $(o_t-\mu)$ associated with the speech frame t, to a spectral distance;

computing a weighted spectral distance by applying time and frequency weighting to the spectral distance employing a time-varying diagonal matrix G_t which represents the weighting coefficient $\underline{\gamma_{tf}}$ [[$?_{tf}$]];

transforming the weighted spectral distance to a weighted cepstral distance employing a forward DCT matrix M to get a transformation matrix T_t;

providing the transformation matrix T_t and the original MFCC feature o_t that contains the information about the SNR to a recognizer including Viterbi decoding; and

performing weighted Viterbi recognition $b_j(o_t)$.

2. (Previously Presented) The method of claim 1 wherein

$$\gamma_{t,f} = \frac{\sqrt{\eta_{t,f}}}{1+\sqrt{\eta_{t,f}}},$$

which guarantees that γ_{tf} is equal to 0 when $\eta_{t,f}=0$ and $\gamma_{t,f}$ approaches 1 when $\eta_{t,f}$ is large.

3. (Currently Amended) A method for performing time and frequency SNR dependent weighting in speech recognition comprising the steps of:

for each time period t, estimating the SNR to get time and frequency SNR information $\eta_{t,f}$;

calculating the time and frequency weighting to get weighting coefficient γ_{tf}, wherein γ_{tf} is a function of $\eta_{t,f}$;

using an inverse DCT matrix M^{-1} to transform a cepstral distance $(o_t-\mu)$ associated with the speech time period t to a spectral distance;

computing a weighted spectral distance by applying time and frequency weighting to the spectral distance employing a time-varying diagonal matrix G_t which represents the weighting coefficient $\underline{\gamma_{tf}}$ [[?$_{tf}$]];

transforming the weighted spectral distance to a weighted cepstral distance employing a forward DCT matrix M to get a transformation matrix T_t;

providing the transformation matrix T_t and the original MFCC feature o_t that contains the information about the SNR to a recognizer including the Viterbi decoding; and performing weighted Viterbi recognition $b_j(o_t)$.

4. (Previously Presented) The method of claim 3 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a pronunciation probability estimation.

5. (Previously Presented) The method of claim 3 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a transmission over a noisy communication channel reliability estimation.

6. (Original) The method of claim 3 wherein

$$\gamma_{t,f} = \frac{\sqrt{\eta_{t,f}}}{1+\sqrt{\eta_{t,f}}},$$

which guarantees that γ_{tf} is equal to 0 when $\eta_{t,f}=0$ and $\gamma_{t,f}$ approaches 1 when $\eta_{t,f}$ is large.

7. (Currently Amended) A method for performing time and frequency SNR dependent weighting in speech recognition comprising the steps of:

for each speech frame t, estimating SNR to get time and frequency SNR information $\eta_{t,f}$;

calculating the time and frequency weighting to get weighting coefficient γ_{tf}, wherein γ_{tf} is a function of $\eta_{t,f}$;

transforming a cepstral distance $(o_t-\mu)$ associated with the speech frame t to a spectral distance;

computing a weighted spectral distance by applying time and frequency weighting to the spectral distance employing a time-varying diagonal matrix that represents the weighting coefficient $\underline{\gamma_{tf}}$ [[$?_{tf}$]];

transforming the weighted spectral distance to a weighted cepstral distance to get a transformation matrix T_t;

providing the transformation matrix T_t and the original MFCC feature o_t that contains the information about the SNR to a recognizer that performs Viterbi decoding; and

performing weighted Viterbi recognition $b_j(o_t)$.

8. (Previously Presented) The method of claim 7 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a pronunciation probability estimation.

9. (Previously Presented) The method of claim 7 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a transmission over a noisy communication channel reliability estimation.